

Application No. 09/728,121
Appeal Brief



DOCKET NO: 1995-0150

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF :
EIICHI MASUHARA ET AL. : EXAMINER: JAGOE, D. A.
SERIAL NO: 09/728,121 :
FILED: DECEMBER 4, 2000 : GROUP ART UNIT: 1614
FOR: DENTAL AND ORALOGIC :
COMPOSITION

APPEAL BRIEF

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

Pursuant to the Notice of Appeal filed September 10, 2003, and subsequent to the
Advisory Action mailed September 11, 2003, the Applicants file herewith their Appeal Brief.

The Brief begins on page 2 of this paper.

A copy of the claims on appeal appears in the Appendix starting on page 7 of this
paper.

- (1) Real Party in Interest. The real party in interest is Kuraray Co., Ltd.
- (2) Related Appeals and Interferences. There are no related appeals or interferences.
- (3) Status of the Claims. Claims 1-24 have been cancelled. Claims 25-43 have been rejected and Claims 44-50 have been allowed.
- (4) Status of the Amendments. The Amendment filed September 10, 2003, after final rejection, has been entered.

(5) Summary of the Invention. Dental materials that are fitted within the mouth or applied within the mouth, such as a tooth crown restorative material, denture, denture base, denture rebase, orthodontic base, wire, bridge, or mouth piece. The specification describes the claimed dental materials which are fitted within the mouth on page 1, lines 10-13, page 7, lines 18-19, and page 9, line 25. Dental materials which are applied in the mouth, such as to teeth, are described in the specification at page 1, lines 12-14, and page 5, generally.

These materials, as described on page 8, line 29-page 9, line 9, and in independent Claims 25 and 40, comprise (a) a photocatalytic titanium oxide precursor, (b) at least one silicon-containing compound [as described in this section and these claims], and (c) a liquid medium. The ratio of component (a) to (b) ranges from 20/1 to 1/100 in terms of moles of titanium atoms in (a) to moles of silicon atoms in (b).

(6) Issues.

A. Does the limitation in Claim 25 "A dental material. . . wherein said dental material is a material that is fitted within or applied in the mouth" distinguish Claims 25-39 from the

products of Hayakawa et al., U.S. Patent No. 6, 165,256 and thus avoid anticipation of these claims by this patent (or the obviousness of Claims 27 and 30, which correspond to prior Claims 3 and 7, over this patent)?

B. Do the limitations in Claims 36-38 to a film which “is applied” or “has been applied” within the mouth or to a material fitted within the mouth, distinguish the claimed dental materials from the products of Hayakawa et al., U.S. Patent No. 6, 165,256 and thus avoid anticipation of these claims by this patent?

C. Does the limitation in Claim 40: “A tooth crown restorative material, denture, denture base, denture rebase, orthodontic base, wire, bridge, or mouth piece [comprising the recited titanium/silicon composition]” distinguish the products of Claims 40-43 from the products of Hayakawa et al., U.S. Patent No. 6,165,256 and thus avoid anticipation of these claims by this patent?

(7) Grouping of the Claims. Claims 25-35, which contain limitations to dental materials fitted within or applied within the mouth, stand or fall together. Claims 36-38, which contain limitations to applied films, stand or fall together. Claims 39-43, which contain limitations to specific dental products, such as a tooth crown restorative material, denture, denture base, etc, stand or fall together.

(8) Arguments.

Hayakawa et al., U.S. Patent No. 6,165,256, does not disclose or suggest every element of Claims 25-35, nor of Claims 36-38 or 39-43. Therefore, it cannot anticipate or render obvious these claims. To anticipate a claim, a prior art document must disclose every

element of the claim, Verdegaal Bros. v. Union Oil Co. of California, 2 USPQ 2d 1051, 1053 (Fed. Cir. 1987), see also MPEP 2131.01. Hayakawa does not disclose or suggest the following elements of the invention:

Claim 25 requires “A dental material. . .” that “is a material that is fitted within or applied in the mouth”. Claims 36-38 require that the dental material is a film that has been applied within the mouth, such as to a tooth (Claim 37), or to a material fitted within the mouth (Claim 38). The Appellants emphasize that these claims require that the film “is applied” or “has been applied” (as opposed to may be, might be, or could be applied) to a tooth or other substrate within the mouth. Thus, these claims require the presence of at least two elements: the applied film and the substrate (such as a tooth) to which it have been applied. Claim 39 requires the dental material be selected from a group of particular materials (including tooth crown restorative materials, dentures, etc.

Claims 40-43 are directed to specific dental materials: a tooth crown restorative material, denture, denture base, denture rebase, orthodontic base, wire, bridge, or mouth piece.

Assuming, *arguendo*, that Hayakawa discloses exactly the same composition as that of the present invention, this patent would not allow one to immediately envisage the claimed dental materials that are fitted within the mouth, such as dental restorative materials or dentures, or materials that have been applied within the mouth, such as films. Hayakawa provides a hydrophilic film with anti-fogging properties; see col. 2, lines 45-54. Col. 5, line 58-col. 7, line 4, generally disclose some proposed uses for the composition of Hayakawa to make use of its anti-fogging effects, including on dental mouth mirrors (col. 5, lines 65-66) and on laser dental treatment equipment (col. 6, lines 15-16). While the term “dental” is used to characterize the equipment disclosed by Hayakawa, clearly this equipment is not a dental material that is fitted within or applied within the mouth! Col. 6 lines 43-col. 7, line 4,

disclose other proposed uses for the Hayakawa compositions for accelerating the removal of water droplets by evaporation or for providing an anti-static effect. While one possible material of the member is ceramics, there is no disclosure or suggestion to apply the Hayakawa composition to a dental material that is fitted within the mouth. Moreover, there is no disclosure or suggestion in Hayakawa of the films or the specific dental materials of Claims 36-43. Accordingly, Hayakawa does not disclose or suggest the present invention which requires a dental material which is fitted within or applied within the mouth, or of the films or specific dental materials of Claims 36-43.

Response to the Argument in the Advisory Action. The Advisory Action indicates that Claims 25-43 are viewed as intended use claims and that if a prior art structure is capable of performing the same intended use then the prior art structure would meet the claim. The Advisory Action deems the prior art structure (composition) of Hayakawa to be capable of use as a dental coating material, and therefore, capable of the same intended use as the dental material of the present invention.

The Appellants respectfully submit that this argument ignores the express limitations in Claims 25-43 to the particular physical or structural forms of the claimed dental materials, *include mirrors* i.e. to a conventional dental material which is "fitted within, or applied in the mouth" or "a film that has been applied within the mouth or to a material fitted within the mouth" or "a tooth crown restorative material, denture, denture base, denture rebase, orthodontic base, wire, bridge, or mouth piece", *definition?*

The Appellants note that the claims specify that the composition "is applied" or "has been applied" within the mouth or to a dental material fitted within the mouth and that this distinguishes the claimed dental materials from an, as yet unapplied prior art composition, which could be or might be applied to another material such as a dental mirror or dental laser.

Application No. 09/728,121
Appeal Brief

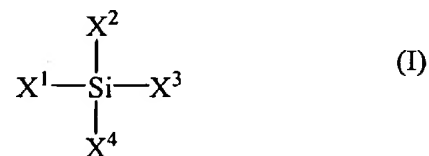
Thus, the Appellants respectfully request that this ground of both the anticipation and obviousness rejections based on Hayakawa, U.S. Patent No. 6,165,256, be reversed.

(9) Appendix (copy of claims on appeal)

1-24 (Cancelled)

Claim 25 (Previously Presented): A dental material comprising a composition that comprises:

- (a) a photocatalytic titanium oxide or a photocatalytic titanium oxide precursor;
- (b) at least one compound selected from the group consisting of:
 - a silicon compound having the following formula (I):



wherein X^1 , X^2 , X^3 and X^4 each independently represent an alkoxy group or a halogen atom,

a hydrolyzate of said silicon compound (I),
a silicone resin,
silicone resin precursor,
and silica; and

- (c) a liquid medium;
- wherein a ratio of (a) to (b) ranges from 20/1 to 1/100 in terms of moles of titanium atoms in (a)/moles of silicon atoms in (b),
wherein said dental material is a material that is fitted within or applied in the mouth.

26 (Previously Presented) The dental material of Claim 25, wherein a ratio of (a) to (b) ranges from 20/1 to 1/1 in terms of moles of titanium atoms in (a)/moles of silicon atoms in (b).

27 (Previously Presented): The dental material of Claim 25, wherein the photocatalytic titanium oxide precursor in (a) is a titanium alkoxide.

28 (Previously Presented): The dental material of Claim 25, wherein the silicone resin precursor in (b) is at least one selected from the group consisting of a silane compound, a silazane, and a mixture thereof.

29 (Previously Presented): The dental material of Claim 25, wherein said liquid medium is selected from the group consisting of water, alcohol, a mixture of water and alcohol, acetone, methyl ethyl ketone, ethyl acetate, chloroform, toluene, hexane, and combinations thereof.

30 (Previously Presented): The dental material of Claim 25, further comprising a thickener.

31 (Previously Presented): The dental material of Claim 25, further comprising at least one particle selected from the group consisting of silver, copper, zinc, metal salt, and a mixture thereof.

32 (Previously Presented): The dental material of Claim 25, comprising a photocatalytic titanium oxide or a photocatalytic titanium oxide precursor.

33 (Previously Presented): The dental material of Claim 25, comprising a

photocatalytic titanium oxide or photocatalytic titanium oxide precursor, and a liquid medium.

34 (Previously Presented) The dental material of Claim 25, wherein said composition has been dried or baked.

35 (Previously Presented) The dental material of Claim 25, wherein said composition has been exposed to photocatalytic light.

36 (Previously Presented) The dental material of Claim 25, which is a film that is applied within the mouth or to a material fitted within the mouth.

37 (Previously Presented) The dental material of Claim 25 that is a film that has been applied to a tooth, tooth restored with composite resin, tooth coated with dental manicure, gums or oral mucous membrane.

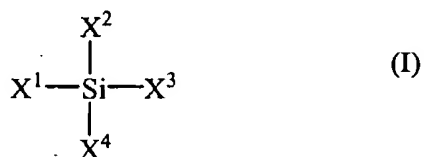
38 (Previously Presented) The dental material of Claim 25 that is a film that has been applied to a material that is fitted within the mouth.

39 (Previously Presented) The dental material of Claim 25 selected from the group consisting of a tooth crown restorative material, denture, denture base, denture rebase, orthodontic base, wire, bridge, or mouth piece.

40 (Previously Presented) A tooth crown restorative material, denture, denture base,

denture rebase, orthodontic base, wire, bridge, or mouth piece comprising a composition that comprises:

- (a) a photocatalytic titanium oxide or a photocatalytic titanium oxide precursor;
- (b) at least one compound selected from the group consisting of:
 - a silicon compound having the following formula (I):



wherein X^1 , X^2 , X^3 and X^4 each independently represent an alkoxy group or a halogen atom,

- a hydrolyzate of said silicon compound (I),
- a silicone resin,
- silicone resin precursor,
- and silica; and

- (c) a liquid medium;

wherein a ratio of (a) to (b) ranges from 20/1 to 1/100 in terms of moles of titanium atoms in (a)/moles of silicon atoms in (b).

41 (Previously Presented) The tooth crown restorative material, denture, denture base, denture rebase, orthodontic base, wire, bridge, or mouth piece, of Claim 40, wherein a ratio of (a) to (b) ranges from 20/1 to 1/1 in terms of moles of titanium atoms in (a)/moles of silicon atoms in (b).

42 (Previously Presented) The tooth crown restorative material, denture, denture base, denture rebase, orthodontic base, wire, bridge, or mouth piece, of Claim 40 wherein said composition has been dried or baked.

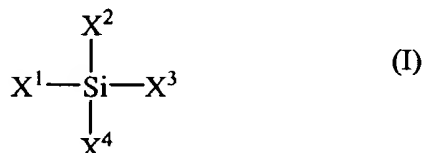
43 (Previously Presented) The tooth crown restorative material, denture, denture

base, denture rebase, orthodontic base, wire, bridge, or mouth piece, of Claim 40 wherein said composition has been exposed to photocatalytic light.

44 (Previously Presented) A method comprising:

applying to a surface selected from the group consisting of teeth, gums, a dental material fitted within the mouth, and an oral mucous membrane, a composition that comprises:

- (a) a photocatalytic titanium oxide or a photocatalytic titanium oxide precursor;
- (b) at least one compound selected from the group consisting of:
a silicon compound having the following formula (I):



wherein X^1 , X^2 , X^3 and X^4 each independently represent an alkoxy group or a halogen atom,

a hydrolyzate of said silicon compound (I),
a silicone resin,
silicone resin precursor,
and silica; and

- (c) a liquid medium;

wherein a ratio of (a) to (b) ranges from 20/1 to 1/100 in terms of moles of titanium atoms in (a)/moles of silicon atoms in (b);

drying said applied composition to form a photocatalytic titanium oxide containing film on said surface; and

exposing said film to light.

45 (Previously Presented) The method of Claim 44, comprising applying said composition into the mouth of a subject having a dental or oral disease or onto a dental material fitted within the mouth of said subject.

46 (Previously Presented) The method of Claim 44, comprising applying said composition into the mouth of a subject having halitosis or onto a dental material fitted within the mouth of said subject.

47 (Previously Presented) The method of Claim 44, comprising applying said composition into the mouth of a subject having discolored teeth or onto a dental material fitted within the mouth of said subject.

48 (Previously Presented) The method of Claim 44, comprising applying said composition into the mouth of a subject having a dental or oral disease or onto a dental material fitted within the mouth of said subject.

49 (Previously Presented) The method of Claim 44, which is a method for bleaching discolored teeth.

50 (Previously Presented) The method of Claim 44, wherein said composition is applied to a dental material, which is fitted within the mouth.

Application No. 09/728,121
Appeal Brief

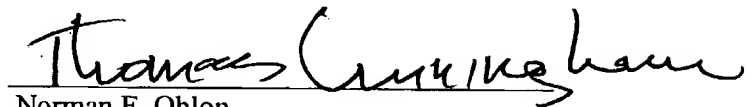
RELIEF REQUESTED

The Appellants respectfully request reversal of the grounds of rejection of Claims 25-43 under 35 U.S.C. §§102 and 103, and the subsequent allowance this application.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read "Norman F. Oblon", written over a horizontal line.

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